

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 42 309.%nb	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/EP2004/012782	International filing date (<i>day/month/year</i>) 11.11.2004	Priority date (<i>day/month/year</i>) 16.12.2003	
International Patent Classification (IPC) or national classification and IPC B21B31/07, F16J15/34, F16J15/447			
Applicant SMS DEMAG AG			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 4 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>

<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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International application No.
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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

 - international search (Rule 12.3 and 23.1(b))
 - publication of the international application (Rule 12.4)
 - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished
 the description:
 pages 2–5 as originally filed/furnished 16.11.2005 with letter of 15.11.2005
 pages* 1, 1a received by this Authority on _____
 pages* _____ received by this Authority on _____

the claims:
 nos. _____ as originally filed/furnished
 nos.* _____ as amended (together with any statement) under Article 19 16.11.2005 with letter of 15.11.2005
 nos.* 1–5 received by this Authority on _____
 nos.* _____ received by this Authority on _____

the drawings:
 sheets 1/1 as originally filed/furnished
 sheets* _____ received by this Authority on _____
 sheets* _____ received by this Authority on _____

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to sequence listing (*specify*): _____
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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1. Statement

Novelty (N)	Claims	1–5	YES
	Claims	_____	NO
Inventive step (IS)	Claims	1–5	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	1–5	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

This report makes reference to the following documents:

D1: US-B1-6 217 219 (HOETING STEPHEN C), 17 April 2001
(2001-04-17)

D2: DE 296 20 018 U1 (KARK, UWE, 21149 HAMBURG, DE), 8 January 1998 (1998-01-08)

Document D2 is considered to constitute the prior art closest to the subject matter of claim 1 and discloses (the references in parentheses are to that document):

1. a roll bearing sealing device with a pin seal (9) arranged upstream of an annular seal (10) on the side of the roll barrel, the annular seal (14) being fixed to an annular flange (10) of the bearing housing (7) and its sealing lip contacting in a sealing manner the front side (4) of the roll (3), the first branch (15) of an annular profile (15) having an L-shaped cross-section being fixed to the front side (4) of the roll (3), the sealing lip lying on portions of the first branch (16), while the second branch (18) of the L-shaped annular profile (15) encloses the annular seal (14) and portions of the annular flange (10) with a small intermediate gap (see

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

page 4, lines 1-6), sealing them from the roll barrel, and at least the portion (16) of the first branch (15) in contact with the sealing lip is hardened (see page 3, last paragraph).

The subject matter of claim 1 therefore differs from the known roll bearing sealing device in that

- (a) the second branch of the L-shaped annular profile **surrounds** portions of the annular flange with a small intermediate gap,
- (b) the annular flange has on its outer side an outwardly open **draining groove**.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

The present invention can therefore be considered to address the problem of further improving the operating properties of the known type of roll bearing sealing device.

Although document D1 describes (column 8, lines 29-34) the same advantages of the second differentiating feature as the present application, a person skilled in the art would not consider the inclusion of both features in the roll bearing sealing device described in D2 a conventional measure for solving the stated problem, for structural reasons.

Claims 2-5 are dependent on claim 1 and thus also meet the PCT novelty and inventive step requirements.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITYInternational application No.
PCT/EP2004/012782**Box No. VII Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

Independent claim 1 has not been drafted in the two-part form defined by PCT Rule 6.3(b). However, in the present case the two-part form would appear to be appropriate. Accordingly, the features known in combination from the prior art (D2) should have been placed in the preamble (PCT Rule 6.3(b) (i)) and the remaining features specified in the characterising part (PCT Rule 6.3(b) (ii)).